EDUCATOR'S GUIDE

ANIMATIONLAND AND BACKYARD BUGS

EDUCATOR RESOURCES

FIELD TRIP ACTIVITIES:
BEFORE AND DURING

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About

This guide is a resource to enrich your and your students' experience before, during, and after your visit to Discovery Lab.

Animationland

Animationland is a 2,000-square-foot, highly-interactive traveling exhibition that brings together art, math, science, and technology by exploring the exciting world of animation. Through a series of hands-on exhibits, graphics, and videos, visitors explore the process of animation. The exhibition features original characters and worlds throughout in colorful illustrations, animation, and larger-than-life graphics.

The exhibition invites the visitor to become the animator, thus creating a unique and highly personalized experience for visitors of all ages. As they bring their own creations to life, visitors have the chance to experiment with a variety of animation tools and techniques, such as storyboarding, character design, drawing techniques, stop-motion animation, movement, timing and sound effects.

Backyard Bugs: An Oklahoma Insect Adventure

Backyard Bugs gives visitors a unique larger-than-life perspective of a bug's world and reveals the fascinating characteristics of our tiny neighbors. *Backyard Bugs* includes a massive, animatronic praying mantis and a larger-than-life monarch butterfly. There are more than a dozen varieties of live insects and arachnids including a black widow, a scorpion, Madagascar hissing cockroaches, darkling beetles, and hornworms.

There are also hands-on exhibits, including a build-a-bug station, DIY firefly flash patterns, a climbable honeycomb, and more. *Backyard Bugs: An Oklahoma Insect Adventure* is an immersive exhibit developed by the Oklahoma Museum Network funded by the Donald W. Reynolds Foundation.

Connecting with the Classroom

Build background knowledge with your students before your trip to Discovery Lab.

PRE-TRIP ACTIVITIES

Activate your students' prior knowledge by asking them the following questions and reviewing the vocabulary words.

Animationland

DISCUSSION QUESTIONS

- What is animation?
- What do you see animation used in real life?
- Can you explain how sound effects are made in movies or television shows?
- How would you use animation to create a video?

VOCABULARY

Low	Medium	High
Animation	Frame rate	Mutoscope
Frame	Stop-Motion	Pixilation

HELPFUL LINKS

Animation World Network
https://www.awn.com

Brickfilms.com
https://brickfilms.com

Flipbook!
http://www.benettonplay.com/toys/flipbookdeluxe/guest.php

Backyard Bugs

DISCUSSION QUESTIONS

- Are insects living beings? How?
- What are the criteria to be an insect? A bug?
- Do people eat insects? What percentage of Earth's population?
- Are insects harmful or beneficial? In what ways?

VOCABULARY

Low	Medium	High
Hive	Arachnid	Bioluminescence
Insect	Arthropod	Exoskeleton
Larva	Pollinator	Metamorphosis
	Pupae	

HELPFUL LINKS

Oklahoma Insect Identification:
https://www.insectidentification.org/insects-by-state.asp?thisState=Oklahoma

Basic Insect Information and Investigation Pre-K-2nd grade:
https://learning-center.homesciencetools.com/article/early-elementary-insects-science-lesson/

Interesting Insects Video:
https://www.youtube.com/watch?v=uiqDniB8T6A

Student Ready Slides

Before your visit, be sure to go through the Student Ready Slides with your class to prepare them for what to expect at Discovery Lab.

CLICK TO DOWNLOAD

Animationland Content Knowledge

Developed and produced by the Oregon Museum of Science and Industry (OSMI), *Animationland* offers a fully immersive, interactive exhibit where students learn to incorporate animation skills into the creation process. Animation is a way to engage visitors with STEAM (science, technology, engineering, art, and math) learning. The exhibition's main message is "I can use animation to tell my stories."

STORYBOARD

Animators often use storyboards to develop their story, and import elements in the animation process. A story board is a series of drawings that is meant for pre-visualizing the shorts of a movie. This is an essential tool to get a sense of the way the movie is going to look and feel. Visitors will be able to place storyboard cards in any order and press the PLAY button to see an animation reflecting the chosen cards.

STOP-MOTION

Stop-motion animation is a film making technique that makes inanimate objects appear to move on their own. This is done by placing an object in front of a camera and snapping a photo. Pixilation is another stop-motion technique that uses people instead of physical objects. Then you move the object a tiny bit and snap another photo. A playback of the sequence is done in a rapid progression which causes the object to appear to be moving fluidly across the screen. Visitors will be able to create their own stop-motion animation using lots of props, cameras, and screens. Monitors above will allow the others to watch the fun.

FOLEY ARTIST

Foley is the art of creating sound effects. Jack Foley was a sound-effects artist that made sound effect for a live radio broadcast. He focused on creating realistic sounds with tools around him rather than using generic sounds made from other programs. The sounds can include footsteps, clothes rustling, clinking, paper folding, doors opening and slamming, punches, glass breaking, etc. Foley artist can clearly see a screen that displays the footage they are adding sound to, and they perform their sound effects while watching this screen for timing. Visitors will be able to go into a Foley room that has creative noisemaking devices to add sound to an animation clip.

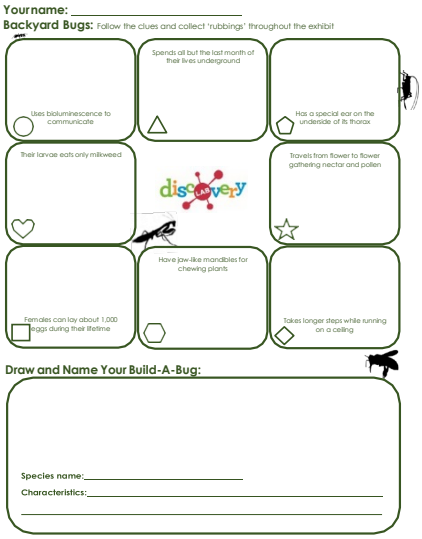
FIELD TRIP ACTIVITIES FOR *BACKYARD BUGS*

During your visit to the Discovery Lab, search for hidden orange 'rubbing stones' using clues that encourage exploration of all of the spectacular *Backyard Bugs* exhibits. Discuss the *Backyard Bugs* activity page with students **prior to arrival and print it out for each student to use.**

Younger students may need to do the rubbings without the clues, so they may use the 'shape key' to match the rubbing box on the *Backyard Bug* Collection page to the rubbing stones around the exhibit. To do a rubbing, find the plastic bugs using the clues, lay your paper on top, and gently rub with a crayon or pencil in the correct box on the collection sheet.

At the end of the worksheet, there is a space for students to draw a bug that they created at the Build-A-Bug exhibit station. After using the Build-A Bug exhibit, students can draw, name, and describe the characteristics of their unique creation.

CLICK HERE TO DOWNLOAD & PRINT ACTIVITY SHEET


Your name: _____
Backyard Bugs: Follow the clues and collect 'rubbings' throughout the exhibit

Uses bioluminescence to communicate

Spends all but the last month of their lives underground

Has a special ear on the underside of its thorax

Their larvae eats only milkweed

Travels from flower to flower gathering nectar and pollen

Have jaw-like mandibles for chewing plants

Females can lay about 1,000 eggs during their lifetime

Takes longer steps while running on a ceiling

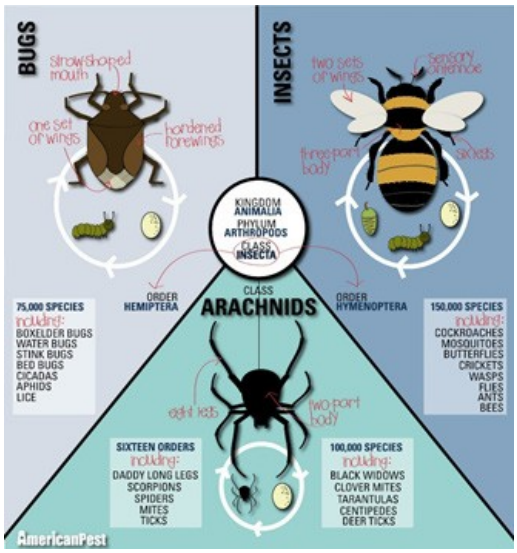
Draw and Name Your Build-A-Bug:

Species name:_____

Characteristics:_____

Backyard Bugs Content Knowledge

What is the difference between a bug and an insect?



BENEFITS OF INSECTS

'Bugs' are often feared, hated, and misunderstood. In fact, the vast majority of insect species are beneficial to humans and the environment alike.

One of the most prominent benefits of insects is that of plant pollination. When an insect visits a flower for vital nectar they in turn 'pick up' pollen from one plant and distribute it to other plants.

Bees are extremely important to humans due to their plant pollination skills. Honey bees were even originally introduced from Europe to help in pollinating our food crops here in the U.S.

Insects are also a vital food source for many other species of animals and are an important part of the food chain. Due to U.S. cultural norms and views, many Americans do not realize that around 80% of the worlds' human population include insects in their regular diet. The most prominent food product for human consumption is honey.

Insects and bugs also act as vital decomposers of organic material. This process helps to enrich soil, and even when insects die, their bodies contribute nitrogen, an important ingredient, back into the soil.

Herbivorous insects are kept in check by other insects who feed on them, helping to contribute to a healthier ecosystem and to combat crop consumption. This can actually be used to cut down on use of insecticides as well.

Finally, insects provide a source of beauty, entertainment, and learning to our human experience. Artists and writers often use insects as subject matter for their artwork and writing. Certain designs of products and technologies incorporate knowledge of insect anatomy to produce new, interesting, and beneficial products for human consumption.

As we can see, 'bugs' are much more than creepy-crawly pests that spread disease and fear. 'Backyard Bugs' enrich our lives in so many ways!

EDUCATIONAL STANDARDS

Process Skills Framework

These process skills are adapted from Institute of Museum & Library Services 21st Century Skills. Discovery Lab's original exhibits and educational curriculum are based on these six areas—giving children skills for life-long learning in addition to content knowledge.

CRITICAL THINKING and PROBLEM SOLVING

- Ask questions
- Reason effectively
- Test ideas and hunches
- Gather more precise information
- Link actions and effects
- Work out possible solutions
- Draw conclusions

COLLABORATION and COMMUNICATION

- Share objects and ideas
- Work toward a common goal
- Stay on task
- Listen and talk
- Build on the work of others

CREATIVITY and INNOVATION

- Imagine
- Generate ideas
- Make unusual connections
- Experience materials and objects in varied ways
- Apply information to new situations
- Try another approach

Curriculum Standards

Pre-Kindergarten
English Language Arts
PK.2.W
PK.3.W
Mathematics
PK.A.1
PK.GM.1.1
PK.GM.2.2

Kindergarten

Science
K-LS1-1
K-ESS3-1
Computer Science
K.IC.C.01
English Language Arts
K.2.W.1, 2
Mathematics
K.A.1
K.GM.1.1
K.GM.2.1

1st Grade

Science
1-LS1-1, 2
1-LS3-1
Computer Science
1.IC.C.01
Mathematics
1.A.1.1
Visual Arts
Standard 4: Visual Art Appreciation
English Language Arts
1.3.W.1

2nd Grade

Science
2-LS2-2
2-LS4-1
Computer Science
2.IC.C.01
Visual Arts
Standard 4: Visual Art Appreciation
English Language Arts
2.3.W.1
Mathematics
2.A.1

3rd Grade

Science
3-LS1-1
3-LS2-1
3-LS4-2,3,4
Computer Science
3.IC.C.01
Mathematics
3.A.1
3.D.1
Computer Science
3.IC.C.01
Visual Arts
Standard 4: Visual Art Appreciation
English Language Arts
3.3.W.1

4th Grade

Mathematics
4.A.1
4.GM.1.2
Visual Arts
Standard 4: Visual Art Appreciation
English Language Arts
4.3.W.1

5th Grade

Science
5-LS1-1
5-LS2-1, 2
Computer Science
5.IC.C.01
Visual Arts
Standard 4: Visual Art Appreciation

6th Grade

Science
MS-LS2-1, 2, 5
Computer Science
6.CS.HS.01
Visual Arts
Standard 4: Visual Art Appreciation